## WE CLAIM:

- 1. A method of producing a polygonal, ring-shaped machine part having a complex cross-section from a metal rod, comprising the steps of:
- A<sub>1</sub>) forging the rod material to prepare a long notched blank 1 having large diameter parts 11, the number of which corresponds to the number of the parts to be bent, and the remaining small diameter parts 12;
- $B_1$ ) bending the large diameter parts 11 of the above long blank 1 to form a first intermediate 3 of polygonal, open ring-shape with confronting ends;
- C<sub>1</sub>) butting and welding the confronting ends of the above ring-shaped first intermediate 3 to form a polygonal, closed ring-shaped second intermediate 5;
- $D_1$ ) die-forging the above closed ring-shaped second intermediate  ${\bf 5}$  to form a polygonal, ring-shaped product  ${\bf 7}$  having a complex cross-section; and
- $E_1$ ) subjecting the above polygonal, ring-shaped product **7** to necessary finishing step such as machining to obtain a polygonal, ring-shaped machine part **8** having a complex cross-section.
- 2. A method of producing a polygonal, ring-shaped machine part having a complex cross-section from a metal rod, comprising the steps of:
- $A_2$ ) forging the rod material to prepare two short notched blanks 2 having large diameter parts 21, the number of which corresponds to half of the parts to be bent, and the remaining small diameter parts

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- $B_2$ ) bending the large diameter parts 21 of the above short blanks 2 to form an intermediate 4 of square U-shape, which is a half of the final product;
- $C_2$ ) butting the ends of the above two square U-shaped intermediates  ${\bf 4}$  and welding the confronting ends to form a polygonal, closed ringshaped second intermediate  ${\bf 6}$ ;
- $D_2$ ) die-forging the above closed ring-shaped second intermediate  $\mathbf{6}$  to form a polygonal, ring-shaped product  $\mathbf{7}$  having a complex cross-section; and
- $E_2$ ) subjecting the above polygonal, ring-shaped product 7 to necessary finishing step or steps such as machining to obtain a polygonal, ring-shaped part 8 having a complex cross-section.
- 3. The method of producing according to claim 1 or claim 2, wherein the long notched blank 1 or the short notched blank 2 is prepared by using a rotary forging machine.
- 4. The method of producing according to claim 1 or claim 2, wherein the welding is carried out by flash butt welding.
- 5. A polygonal, ring-shaped machine part having a complex crosssection, which is a frame for transition piece of a gas turbine produced by the method according to claim 1 or claim 2.